

CDM

environmental engineers, scientists,
planners, & management consultants

CAMP DRESSER & MCKEE INC.

3445 Executive Center Drive, Suite 220
Austin, Texas 78731
512 345-6651

April 22, 1986

✓ Mr. John Cochran
U.S. Environmental Protection Agency
First International Building
1201 Elm Street
Dallas, TX 75270

Doc. Ctrl. No. 143-TS1-EP-CNCA-1

RE: South Cavalcade Street, Weekly Compliance Monitoring Report

Dear John:

Enclosed is a summary of the compliance monitoring activities and field notes for the South Cavalcade Street Site for the week of April 7 through April 11, 1986.

Sarah Landtiser's summary memo contains several observations and comments that relate to decontamination procedures and health and safety at the site. I want to reassure you that the comments and observations made by CDM are not the result of interfirm rivalry, nor are they based on problems CDM has encountered with McBride-Ratcliff at another site. The issues we have raised are of genuine concern and are documented in the field notes we have provided you.

Although I have been told that we have received copies of field notes prepared by McBride-Ratcliff personnel, I have not yet seen them.

As you requested, an additional copy of the summary and notes are enclosed for transmission to Koppers.

Sincerely,

CAMP DRESSER & MCKEE INC.

Robert S. Kier
Robert S. Kier
Site Manager

RK:tp

cc: Files
Rex Hart

002397

036

Tele memorandum

Date April 11, 1986

To Files

From. Susan A. Lister

Re. South Walesboro Compliance Monitoring - Koppers Co, Inc
7777-142-TS1-0126-L

During the week of April 7-11, 1986 I observed field activities at the Koppers - South Walesboro site. The following table summarizes the site's topsoiling program.

002300

Date	Run No. (See P-)	TD (in)	No Samples	Remarks
4/7/86	A13-5801	60	23	plant to strong odor - usual contamination.
4/8/86	A13-5802	56	23	plant to strong odor 4'-4" usual
4/9/86	A11-5301	67	30	plant to strong odor 2'-47"; 6" usual
4/10/86	no drilling	-- rain		
4/11/86	A14-5801			plant to strong odor 2'-51" usual

In general all procedures were conducted according to specifications however the following comments are offered:

- 1) The lack of a drillers helper at all times creates the need for the drillers to drag auger flights and drill pipe from trailer (adjacent) across ground over to drillers stand where he can reach it - cross contamination might be an issue on very contaminated holes

2) Placing of sampling equipment, i.e. Shelby tubes and split spore on the ground where crew has been walking around and decom water has ponded also creates a less than ideal, isolated sample. This happens both before clean tool is lowered to obtain sample and after the tool is retrieved.

3) Health and Safety measures are very relaxed. Project Engineer for MRA never wore a hard hat while I was monitoring. A Hdu is not consistently available, or periodically used when it is on site.

4) Drum storage is still a concern, although it appears to have improved somewhat.

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002400

4/7/86 Wx. overcast, hazy, warm (70s-80s) v. slight
 0645 depart Austin SE breeze (5 mph)
 0845 call office
 0905 arrive So Cal. Site, crew assembling
 equip, steam cleaning equip.
 Wayne Turney tells me A27-5801
 was clean to total depth of 60'
 7005 begin drilling JCK-A13-5801
 in grass in front of "Richards"
 Trucking office, 60' N of
 Collingsworth and ~15' E of
 West driveway.

no hole available

sample taken w/ shelly hole, holes at top
 ripped through when extending, more
 over 5" and collect new sample

DEPTH	DESCRIPTION	REMARKS
0-2	CL sandy (red) clay, moist, stiff, roots and grass. tan and black & orange stains	no odor no vis
RECU. 1.5'		
BC: push 5'		
A13-5801-01(1.5')		
creosote odor	in working area	

S Alandthoo 4/7/86

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DEPTH	DESCRIPTION	REMARKS
2-4	SD, clay, mod. sp. odor silty, brown-black, visual in pure w/long stream, product - 4" dry, tight from ~2.5-3.0'	
4-6	SW sandy (red) silty, clayey, grey-brown, moist, soft	mod. odor some traces of creosote
RECU. 5-1'		
BC: push 5'		
A13-5801-03(5')		
6-8	SW silty f. sand, dry, tan and orange, tight	mod. odor dark traces of creosote
RECU. 1.5'		
BC: push 5'		
A13-5801-04(7.5')		
8-10	Washing tools leaving black from cleaning off creosote Wayne Turney is now extending sample onto a clean sheet of plastic in the PVC ship	
8-10	SW silty f. sand, tan and orange, tight, dry	mod. odor traces of creosote stain
RECU. 1.5'		
BC: push 5'		
A13-5801-05(9.5')		

S Alandthoo 4/7/86

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002401

Turney sprinkles bentonite powder into bottom of bucket used for last water run.

DEPTH DESCRIPTION REMARKS

1110 HNV arrived
1115 J. Turney takes breathing zone and down auger stem HNV reading background - 0.5
level w/ open auger = 10.

10-12 SW silty f. sand slight-med.
recov. 1.5' tan w/ orange stains cross odor
BC push ST dry, tight traces of
A13-5801-06(12) oil stains

12-14 SW silty f. sand slight-med.
recov. 1.5' tan w/ orange stains cross odor,
BC push ST slightly moist, moderately traces of
A13-5801-07(13) tight. oil stains

Turney dips of extruder arm
130 T. A. Clear around then leaves
cleaned tubes laid on plastic that dirty ones are
laid on and that we walk on.

S. Alanderson 4/7/86

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DEPTH

DESCRIPTION

REMARKS

14-16

recov. 1.5

BC push ST

A13-5801-08(15)

SW silty f. sand slight-med.
dark gray - reddish brown cross
wet, moderately loose traces of
cross odor

16-18

recov. 1.5

BC push ST

A13-5801-09(17.5)

drill to 22

16-22 22-24

SW silty f. sand, dark strong odor
grayish brown, wet, only steam
loose and stain
oil soaked
driller says clay 21'-22'

recov. 1'

BC push ST

A13-5801-10(23)

24-26

SW sand f. med. slight odor
reddish brown stain
dry, loose (exp. or)

no recovery - no sample / log

1150. w. Turney does hand spec on samples

taken 100 ft.

1155 breathing zone reading taken w/

HNV = 0.5

-01 0.5

-02 95

-03 500

-04 250

-05 200

sample hand spec = (ppm)
-06 380
-07 350
-08 410
-09 280

1240

beginning to sprinkle

S. Alanderson 4/7/86

DEPTH	DESCRIPTION	REMARKS
24-26-28 recv. 1.5 BC push-ST A13-5801-11(28) 1255	CL clay w/ silt/sand dense, brown clay w/ grey/ tan silt sandy zones also dry	large oil spots slight odor
26-28-30 BC push-ST A13-5801-12(30) recv. 2'	same as above	slight odor oil spots (bare)
30-32 recv. 2' BC push-ST A13-5801-13(32')	same as above	slight odor trace oil spot
32-34 recv. 2' BC push-ST A13-5801-14(33.5)	CL clay (red-brown) hard, trace oil w/ tan/grey sandy silt partings, less decreasing odor in prevalence slickensides	spot & faint odor
34-36 recv. 2' BC push-ST A13-5801-15(36)	CL clay (red brn.) hard grey clay mottles, very faint to trace silt (grey) partings	no odor no visual

5/1/another 4/7/06

DEPTH	DESCRIPTION	REMARKS
36-38 recv. 2' BC push-ST A13-5801-16(38) 1255	CL as above yet appears quite more disturbed, silt yet is not trash, stuff w/ silt partings	faint odor slight strain oil in silt parting
38-40 recv. 2' BC push-ST A13-5801-17(39.5)	CL clay (tan-grey) w/ red-brown mottles silt, (clay) w/ some silt partings	Trace oil spot and faint odor
1400	decon water drummed and fresh batches made up.	
40-42 recv. 2' BC push-ST A13-5801-18(41.5)	CL as above, no more silt parting, slightly moist	no visual faint odor, probably on wet outside of sample (a piece is cored and no odor is noticeable)
42-44 recv. 2' BC push-ST A13-5801-19(44-46)	CL tanish-grey clay slightly sandy w/ orange staining, stuff, slightly moist	oil spot

5/1/another 4/7/06

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207200

DEPTH	DESCRIPTION	RECOVERY
<u>46-48</u>	ML-CL silty clay	slight odor
recor. 2'	w/ some sand & f., somewhat	traces of
BC push 5T	stiff, dry, tan-grey w/	oil spots
A13-5801-20(47.5)	pink & yellow stains	

2/14/42 W. Turney does head space on
samples taken thus far. Results as
follows:

-10	21.0	-16	14.0
-11	33.0	-17	1.1
-12	3.2	-18	4.5
-13	11.0	-19	10.5
-14	100	-20	454.5
-15	100		

1450 breathing zone H₂S - 0.5

1500

<u>48-50</u>	ML-CL ML-CL silty clay	trace oil spot
recor. 1.5'		faint odor
BC push 5T	stiff hard, dry, tan-grey,	
A13-5801-21(49.5)	with pink and orange stain	

50-52

recor. 2'	ML-CL silty clay, w/ some v. faint odor
BC push 5T	and pockets, hard no visual
A13-5801-22(51.5)	tan-grey, reddish brown and orange mottles
	black silt dendritic

S. Alanthra 4/7/42

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DEPTH	DESCRIPTION	REMARKS
<u>52-54</u>	ML-CL as above	
recor. 1.5'		v. faint - no odor
BC push 5T		no visual
A13-5801-23(53.5)		
1530	B. Wilson arrives and helps with tubes	
<u>54-56</u>	ML-CL as above -	
	considered wash - no recovery	

56-58 1540 deanned tubes are laid on
dirty plastic sheets or held vertically
w/ bottom resting on grass or sheeting

56-58 - no recovery58-60

recor. 1.5'	CL clay, red brown	no odor
BC push 5T	some silt, hard,	no visual
A13-5801-23(59.5)	dry,	

60' = TD

16151625

begin grouting
for site, call office, make hotel
reservations
return site, still grouting

1650

S. Alanthra 4/7/42

anger flights are placed on forklift
on a pallet covered in plastic
sheeting
pallet of 3 drums with pallet
of anger flights loaded on top is
carried back to secured area
via forklift. I check drums
in secured area. 3-5 barrels
left uncovered, several more
are covered but not clamped shut
- no different from last week.

1745 depart site, granting still in
progress, check in hotel, finish report.

4/3/86

0800 Wx. pty cloudy, WSW breeze, temp 70's-80's

0810

go to look for place to make copies,
fill up van with gas, make copies, to
post office to mail last week's report,
stop at 7-11 to get refreshments for
the day.

0900

arrive site, crew getting equipment
together

0910

move to next boring location A13-5802
crew setting up. I think I can
smell a very faint creosote type

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odor occasionally with a gust of wind
in the ambient air, but not sure
I check equipment and ground yesterday
hole. Anger flight has a trace of
clay in spots left on, as does one
of the Shelby tubes, clay looks clean,
however and I cannot smell an
odor on anything, probably ok.
Hole from yesterday has dry
cement powder on top, B. VanAntwerp
tells me a big brake gear and they
shoveled excess into the hole - only
a shovel full" he said.

0930

B. Tobin arrives onsite, stands
back as he is not dressed out
A. Bellini, he tells J. Turney to
set up barricades. Turney & Miller leave
and return with barricades.

0945

drilling begin. Note: A13-5802 is
located midway E-W on grassy
area in front of merchants' office
about 4' N of sidewalk on
Collingswood
Tobin does not even have a hard hat
on or safety glasses but is

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002405

Within 5' of rig. He didn't have one with him.

DEPTH	DESCRIPTION	REMARKS
0-2	SM sand & clay fill,	no odor
BC push ST	frag brick, blind rock.	no visual
recor. 1.5'		
A13-5802-01 (1.5)		

DEPTH	DESCRIPTION	REMARKS
2-4	CL sandy clay,	no odor
recor. 2'	dark grey w/ orange	no visual
BC push ST	stains, slightly moist,	
A13-5802-02 (4')	tight, some sand pockets, var. dry	
photo #13	B. Tobin slow protocol gear by rig.	

DEPTH	DESCRIPTION	REMARKS
4-6	CL sandy clay brown - faint odor	
recor. 1.5'	dark grey w/ orange stains	light
BC push ST	slightly moist, sand content	oily, contain
A13-5802-03 (5.5)	decreasing (~20%),	

1010 HNU arrives on site

DEPTH	DESCRIPTION	REMARKS
6-8	CL sandy clay, brown-grey	oily stains
recor. 1.5'	w/ black oily stains	mod. odor
BC push ST	moist, slightly tight	
A13-5802-04 (7.5)		

1015 driller asks Tobin for another helper. Tobin

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says because it won't increase production he won't do it. I told Tobin if they started earlier & worked later and got another helper onto here they would see 2 holes per day. He discounted my suggestion. I mentioned that oftentimes angle flights have to be steam cleaned. Again in the morning he said he knew what I'm on top of things."

DEPTH	DESCRIPTION	REMARKS
8-10	CL as above with	less oil string
BC push ST	less contamination	slight odor
recor. 1.5'		
A13-5802-05 (9.5)		
10-12	10-11.5 CL as above	faint odor
BC push ST	with oily specks throughout	
recor. 2.0'	11.5-12.5 CL as above	slightly sandy/mod odor
A13-5802-06 (12')	grey w/ orange stains	
	moist, tight	

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DEPTH	DESCRIPTION	REMARKS
12-14 13.5'	SM silty f sand,	oil soaked,
recov. 1.5	tan-gray, saturated,	with specks
BC push-ST	loose	of black throughout
A13-5802-07(13.5)		strong med odor

14-16 (SM)

1040 Turney begins too assembling Hb for headspace analyses

background 0.5 ppm (readings) in ppm:

-01 0.5	-05 2.5
-02 0.5	-06 9.0
-03 2.0	-07 21.0
-04 4.0	

1045 breathing zone (behind rig) - 0.5 ppm
in "red" pit - 2.0 ppm

1105 drill down to 22' to get out of sand.

DEPTH	DESCRIPTION	REMARKS
14-16 22-24	SM-CL slightly sandy	spots and specks
recov. 1.5	clay with pockets of	off oil soaked
BC push-ST	silty sand clay is	arced,
A13-5802-08(23)	red brown w/ grey mottled	moderate odor
	sand is light grey	

1110 Bill Tobin back onsite to photograph samples

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DEPTH	DESCRIPTION	REMARKS
16-18 @ 24-26	SM silty sand, some	pockets and
recov. 1.5'	clay, loose, slightly	specks of
BC push-ST	moist, tan-gray with	oil soaked sand
A13-5802-09(25.5)	orange stains	mod. odor

26-28

recov. 2.0	SM-CL si clay with	sand pockets
BC push-ST	partings and pockets of	show oil stain
A13-5802-10(28)	silty f sand, red brown & grey	mod. odor
	clay & grey si sand, dry, stiff	

28-30

recov. 1.5	SM-CL silty clay w/ silty	no odor
BC push-ST	sand partings, red brown	sm trace of
A13-5802-11(30)	and lt. grey, stiff	oil spot in
	dry, thickened	a sand parting

duplicate sample also taken labeled
as "A13-5802-61" from 21' depth
it is taken from horizon just above
actual sample.

30-32

recov. 2.0	SM-CL as above	few no odor
BC push-ST		few oil spots
A13-5802-12(31.5)		and traces

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707200

DEPTH	DESCRIPTION	REMARKS
<u>32-34</u> recov. 1.5' BC: push-ST A13-SB02-13(34)	CL - slightly silty clay w/ orange silty sand partings, red-brown & traces of oily grey, dry, stiff, stickenside deposits	no odor streaks & traces of oily
<u>34-36</u> recov. 2.0' BC: push-ST A13-SB02-14(36)	CL - clay, red-brown & grey mottles, dry, stiff, silt pockets	no odor small trace of visual
<u>36-38</u> recov. 2.0' BC: push-ST A13-SB02-15(38)	CL - sandy (15%) clay grey and pinkish-brown dry, stiff	v. faint odor v. sm. oil spot,
<u>38-40</u> recov. 1.5' BC: push-ST A13-SB02-16(39)	CL - sl. silty (<10%) clay grey w/ red-brown mottling stiff, dry	no odor sm. streak of oily contents.

1245

H ₂ O ₂	readings	(in ppm)
-08	48.	-11 7. -14 9.5 -61 9.
-09	18.	-12 19 -15 13
-10	23.	-13 6.5 -16 14

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1253 breathing zone reading 1.0
1300-1315 break

1317

DEPTH	DESCRIPTION	REMARKS
<u>40-42</u> recov. 1.5' BC: push-ST A13-SB02-17(42)	CL - clay, tan-grey mod. plastic - stiff, dry, plant root orange staining	no odor no visual

42-44

<u>42-44</u> recov. 1' BC: push-ST A13-SB02-18(42.5)	CL - clay grey w/ orange staining, dry, mod. plastic	no visual no odor
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44-46

<u>44-46</u> recov. 2' BC: push-ST A13-SB02-19(46)	SM (10%) clayey, silty tan-grey w/ orange staining, dry tight	no visual no odor
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46-48

<u>46-48</u> recov. - 0 BC: push-ST A13-SB02-20(48)	no sample taken only cuttings retrieved	
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S. Alanthro 4/8/86

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DEPTH

48-50

recor. 2'

BC: push ST

A13-5802-20(50)

DESCRIPTION

SM: clayey (10%)

silt, dry, fairly

stiff, get breaks

evenly, tan grey w/

Fe (orange) streaks

REMARKS

no odor

1. sm. patches

of oil stains

50-52

recor. 2.0

BC: push ST

A13-5802-21(52)

CL silty clay w/

f. sand seams (2%) red brown

w/ tan grey and orange

mottling

no odor

no visible

52-54

recor. 2.0

BC: push ST

A13-5802-22(53)

CL clay w/ some

silty sand seams

clay red brown with some

grey mottles, sand is

stained orange, stiff-hard,

dry

no odor

no visible

54-56

recor. 1.5'

BC: push ST

A13-5802-23(55)

CL as above

no odor

no visible

56' = TD

1445 - end drilling. begin to rig grout

Shandee 4/8/66

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and load up equipment
1500. w. Turney & Turney up Habi headspace
readings: (ppm)

-17 0.5

-21 1.5

-18 1.5

-22 0.5

-19 2.5

-23 0.5

-20 8.

grout injection is 2-94# bags cement
1-50# bag bentonite

note: error on p. 110 cement is
NOT 100# but 94# and
bentonite is 50# not 94#

1540 depart site, look at grout in secured
area, still a few (3-4) unsecured, several
others: unclamped.

SA Landman 4/8/66

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4/9/86 W. overcast, cool 60's, ESE breeze ~15 mph
 0800 arrive site, crew steam cleaning augers
 0915 begin drilling All-SB01 located in
 grassy area in front of Merchants office

DEPTH	DESCRIPTION	REMARKS
0-2	SM silty s. sand fill	no odor
near 1.5'	dry, loose, tan-brown,	no visual
BC push ST	roots & organic matter	
All-SB01-01(15)		

2-4	CL-SM "silty sandy clayey" (3:2:1)	strong odor
near 1.5'	silt, black and tan,	visual - black
BC push ST	shell frags, dry, stiff to	mod chips
All-SB01-02 (3.5)	slightly stiff.	

W. wind seems to have shifted to NE, feels cooler too
 0930 rig responding very rough, grinding
 no penetration possible, will move
 south and begin sampling at 4' depth

0945 depart site to go to Fed Express
 pick up H&V, go to N. Canaliade
 where surveying crew working take
 H&V ambient air reading 10.2 ex prob

1025 background: 0.3 ppm
 ambient air: 0.3 ppm

1035 depart N. Canaliade go back to
 South Can.

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1040 back to South Can. boring location All-SB01
 located ~25' SW of NE corner of
 grassy area in front of Merchants Truck office.
 when they moved south 10' they
 hit large obstruction at same depth,
 so they moved west about 8' and
 this time they missed it. I
 was not present for two samples taken
 from 4-6 and 6-8 feet. The following
 description is based on sample in jar
 and J. Turney's field notes:

4-6	CL sandy clay	oil stain
near 2'	dry, tan	creosote odor

BC push ST
 All-SB01-03(6)

6-8	CL as above with	oil stain
BC push ST	fl and vertical sand	on particles
near 2'	partings, dry, tan	creosote odor

All-SB01-04(7.5)

my log begins:

8-10	CL sandy clay	oil stain
BC push ST	tan-grey with orange	mod odor
near 2'	stains (Fe) dry, stiff	

All-SB01-05(9.5)

S. J. Landman 4/9/86

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DEPTH	DESCRIPTION	REMARKS
10-12	SN clayey (20%) sand	oil stain
recon 2'	dark silt, tan-grey,	faint-med odor
BC push ST	dry, Fe-orange stains,	
AH-5801-06(12)	tight yet breaks up easily	
1050	HNU arrived	
12-14	SN silty sand, tan-	oil spots (5%)
recon 1.5'	grey, dry, loose, orange	throughout
BC push ST	Fe staining	faint to med odor
AH-5801-07(13.5)		
14-16	SN silty sand, tan-	oil spots (10%)
recon 1.5'	grey, dry, loose, slight	throughout
BC push SS	orange (1%) staining	faint to med odor
AH-5801-08(15.5)		
1110	drill to 19' (140%)	
19-21	SN clayey silty sand	oil spots (10%)
recon 1.5'	red brown with grey, dry	throughout
BC push ST	stiff yet breaks up easily (f-med) odor	
AH-5801-09(21)	carbonaceous deposits	
1135	Anthony gets contaminated groundwater	
	off over his overalls, he leaves to	
	change clothes	
	W. T. Arney also heads over on samples	
	taken this far.	
	SA Lanthier	4/9/86

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HNU readings in ppm: (background 0.5)					
01	0.5	04	6.0	07	3.5
02	1.0	05	5.0	08	11.0
03	5.5	06	3.5	09	4.0

Note: these headspace cannot be directly correlated with Monday or Tuesday as temperature is approximately 15°C lower today than before

1145 breathing zone behind rig HNU 0.5

1150 - beginning to rain, thunder heard overhead, crew continues working

DEPTH	DESCRIPTION	REMARKS
21-23	CL clay w/ silt	moderate to odor
recon	silt, red brown	oil stains
BC push ST	grey mottling, stiff	
AH-5801-10(22)	dr. moist	
23-25	CL clay w/ sandy silt	seam in
recon 1.5'	clay (vertical), grey	saturated w/
BC push ST	w/ red mottling, soft	black carbonaceous
AH-5801-11(24)	moist	med odor

SA Lanthier 4/9/86

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117200

DEPTH	DESCRIPTION	REMARKS
25-27	SM-CL clay w/	faint mod odor
BC: push ST	sandy silt partings,	partings have
reco: 2.0	red brown w/ grey mottling	only coarse
AH-SB01-12(26)	silt partings grey, stuff,	stains
(26.5)	slightly moist	
27-29	SM-CL clay w/ sandy	mod faint odor
reco: .5'	silt partings as above	parting
BC: push ST	stuff, dry, red brown has a rhy	
AH-SB01-13(27.7)	and grey	spot.
29-31	SM-CL as above	partings have
reco: 1.0		black sh. (very)
AH-SB01-14(30.5)		only get small
BC: push ST		spots
		mod faint odor
31-33	SM-CL as above	partings have
reco: 1.5		coarse stains
BC: push ST		mod faint odor
AH-SB01-15(33)		
33-35	CL as above get wet	mod faint odor
reco: 1.5	no partings	
BC: push ST	shaken and comp no small	
AH-SB01-16(35)	roots	

SALANDHASE 4/9/86

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DEPTH	DESCRIPTION	REMARKS
35-37	SM-CL clayey silt	mod faint odor
reco: 2	tan-red brown, tight	SM spots of
BC: push ST	dry.	only center
AH-SB01-17(37)		
1300	cuttings have outbursted	only sheer / stop odor
37-39	SM-CL very clayey	
reco: 2	150% silt	only spots
BC: push ST	tan-grey w/ red brown	mod faint odor
AH-SB01-18(39)	stuff, dry mottling	
39-41	SM-CL as above	few only spots
reco: 1.5'		mod faint odor
BC: push ST		
AH-SB01-19(41)		
1310	then stops	
41-43	SM-CL as above	mod faint odor
reco: 2.0		few only spots
BC: push ST		
AH-SB01-20(43)		
1315		
2. Turney	dry	headspace in sample
-10	15.	-14 10.5
-11	16.5	-15 8.5
-12	15.5	-16 6.0
-13	10.	-17 14.

SALANDHASE 4/9/86

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217200

high humidity does not seem to be
adversely affecting H₂O readings.

DEPTH	DESCRIPTION	REMARKS
1325	breakling gone behind rig: 0.5 ppm.	
43.45	SM-CL as above, yet mod. odor	
REC'D. 2.0	sl. more red-brown	only spots
BC: push ST	than before, calc. veins throughout	
A11-5801-21(45)	concretion	
15.47	CL slightly silty clay, ^{several} spots	
REC'D. 1.5	red brown, blocky, slickensided, mod. odor	
BC: push ST	dry, calc. deposits, stuff	
A11-5801-22(46.5)		
47.49	CL as above	no visual
REC'D. 1.5	w/ root mottles	no odor, altho'
BC: push ST	J. Turley says he	
A11-5801-23(48.5)	can smell creosote	
	can't	
49.51	CL, as above	no odor
REC'D. 1.5		no visual
BC: push ST		
A11-5801-24(50)		

SA Lanthier 1/9/86

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1410 begins to rain again, off and on

DEPTH	DESCRIPTION	REMARKS
51.53	CL, as above	no odor
REC'D. 1.5	of trace of yellow	no visual
BC: push ST	stains	
A11-5801-25(52)		
53.55	CL, slightly silty clay,	no visual
REC'D. 1.5	red brown, blocky, slickensided,	no odor
A11-5801-26(55)	dry, stuff, Fe stains ^{iron spots}	
	MnO ₂ Fe deposits (black - does not look	
	like the only stains seen before)	
	tr. yellow stains, few silty-filled root mottles	
1437	grey	
55.57	CL silty clay,	no vis
REC'D. 1.5	red brown, blocky, slickensided,	no odor
A11-5801-27(56.5)	very grey mottling, few	
BC: push ST	black and yellow spots, stains	
	not silty tho', dry, stuff	
1443	B. Lohan arrives with cement	
	ventomte	
1450	J. Turley begins doing lead pipe on	
	reshaping sample	

SA Lanthier 1/9/86

160

3 1 4 2 0 0

Hlv readings are as follows.

-20	12	-23	2.5	-26	0.5
-21	11.5	-24	1.0	-27	0.5
-22	10.5	-25	0.5		

1455 breathing zone hlv = 0.5

1510 B. Tobin and Shann Craig arrive onsite

DEPTH	DESCRIPTION	REMARKS
57-59	CL clay, rd. brown	no odor
BC push ST	stiff, hard, dry, silt	no via
recovery 1.5	partings (brown)	
A11-SB01-28(58.5)		

1520

59-61	CL ad above	no odor
BC push ST		no visual
recovery 1.5		
A11-SB01-29(60.5)		

61-63 @ CL-ML - clayey silt mod. odor

BC push ST red brown, tight, dry oily stains

recovery 1.5 1 sheen

A11-SB01-30(62.5)

63-65 no recovery

65-66.5 CL-ML clay & silt no odor

BC push SS rd. brown, tight, dry no via

recovery 1.5 mod. plastic

A11-SB01-31(66.5)

SALAN thea 4/9/26

CURVE TABLES

Published by KEUFFEL & ESSER CO.

HOW TO USE CURVE TABLES

Table I. contains Tangents and External to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

EXAMPLE

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20' to the R. at Station 542+72.

Ext. in Tab. I opposite 23° 20' = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

Tan. in Tab. I opp. 23° 20' = 118.31
118.31 ÷ 10 = 11.831.

Correction for A. 23° 20' for a 10° Cur. = 0.16
11.831 + 0.16 = 11.991 = corrected Tangent.

(if corrected Ext. is required find in same way)
Ang. 23° 20' = 23.33° ÷ 10 = 2.3333 = 1.. C.

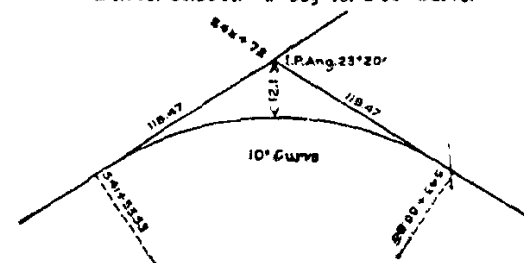
2° 19½' = def. for sta.	542	I. P. = sta.	542+72
4° 49½' = " " "	+50	Tan. =	11.991
7° 19½' = " " "	543	B. C. = sta.	541+53.53
9° 49½' = " " "	+50	L. C. =	233.33
11° 40' = " " "	543+	E. C. = Sta.	543+86.80
	86.86		

100 - 53.53 = 46.47 × 3' (def. for 1 ft. of 10° Cur.) = 139.41' =

2° 19½' = def. for sta. 542.

Def. for 50 ft. = 2° 30' for a 10° Curve.

Def. for 36.86 ft. = 1° 50½' for a 10° Curve.



4/9/86 continued

67-69 ⁵⁰ CI-5M clay with no odor
 new 2 ⁵⁰ spongy salt paintings no usual
 bc part ST red-brown, stiff, dry
 All 5801-32(69)

8 am 1620 TD = 69' begin grouting
 1630 depart site, check out secured
 area of MRA looks better
 than this morning. Bruce
 Urban must have been busy.
 1635 North Cavalcade Holo reading
 background 0.3 ppm
 ambient air 0.3 ppm
 1645 day end

4/10/86 mix rain, cool, overcast
 0745 go to pick up gloves
 0840 arrive site. B Van Antwerp
 informs us that there will be
 no drilling today
 0900 depart site.

J. A. Lanthier 4/10/86

2
4/11/86 Wx. overcast, humid, calm, cool 60's

0745 arrive site, crew steam cleaning
augers, pump pump not working at
concrete pad is covered in talc.

0845 go to No. Cavalcade to take
ambient air reading
HNU not responding well, &
zero on standby then when I
take a reading it shows an
initial 0.3 for background then the
needle slowly falls below zero.
Perhaps humidity adversely
affecting it.

0900 back at the South Cavalcade
crew setting up, biologist for MRA
is now Paul Moore.

0935 begin drilling A14-5801
located south of refrigerant's machine
Shop is parking area, and
approx. 8' east of West lot
boundary ~ 50' north of Collinsworth
augers look okay, concrete pad
in drillers working area
10" asphalt - drill down to 2'

Standard 4/11/86

002415

DEPTH	DESCRIPTION	REMARKS
2-8-2-4 BC: push 5T rec'd 2' SCK-A14-5801-01 (3')	SM silty sand (f) and clay clay FILL shell rock frags, black and brown, dry, loosely packed	moderate odor black charcoal like appearance
4-6 BC: push 5T rec'd 1.5' A14-5801-02(5')	SM v. clayey sand (f) cohesive, thin ^{gray} silt matrix mottled, moist	v. slight odor no visual
6-8 BC: push 5T rec'd 2' A14-5801-03(7.5')	SM as above	v. slight odor no visual
8-10 BC: push 5T rec'd 2' A14-5801-04(10')	SM as above	slight odor no visual

P. Moore handles pumped with gloves on, he
cuts a core of the sample before he jars
it.

Standard 4/11/86

002416

4

DEPTH	DESCRIPTION	REMARKS
10-12	SW-SW silty ls sand	slight odor
BC: push-5'	gray w/ orange (Fe)	no visual
near 1.5'	mottles, moist, tight	
A14-SB01-05(11.5')		
12-14	SW-SW sl. silty (20%)	slight odor
BC: push-5'	sand, gray w/ brown (Fe)	no vis.
near 1'	orange staining/mottled,	
A14-SB01-06(13')	moist, tight	
14-16		
1030	P. Moore takes H ₂ O headspace readings, he records a stabilized reading instead of the peak readings are as follows (in ppm):	
-01	0.5	-03 1.5 -05 5
-02	4.0	-04 1.5 -06 0.5
1035	beginning to sprinkle	
Drill to 23', driller says clay at ~22'		
23-25	CL sandy clay with - few vit spots	
near 1.5'	sandy silt partings, red-brown w/ gray mottles, dry, slight odor	
BC: push-5'	stiff	
A14-SB01-07(23')		

J. Alan Chao 4/11/86

5

DEPTH	DESCRIPTION	REMARKS
duplicate of A14-SB01-07 is also taken just below and is called A14-SB01-61 and labeled as 30'		
25-27	CL clay w/ sandy silt partings, red-brown with gray mottling, dry	v. slight odor, contrast in root pathways (few)
near 1.5'	v. stiff, calcareous deposits	
BC: push-5'	roots	
A14-SB01-08(24)		
27-29	CL as above - no calc. deposits, sl. slickensided	oil spots and oily root pathways
near 1.5'		
BC: push-5'		
A14-SB01-09(28.5')		
29-31	CL as above	oil spots more concentrated in partings
BC: push-5'		
near 2'		
A14-SB01-10(30)		
1105	P. Moore takes breathing zone behind 179 w/ H ₂ O = 0.5 background	

J. Alan Chao 4/11/86

00247

DEPTH	DESCRIPTION	REMARKS
<u>31-33</u>	CL as above	only stain
BC push 5T	31-31.5 CL as above	in plantings
APN 1'	31.5-32 SM silty sand	sl. mod. odor
BC push 5T	tan-brown, tight moist	throughout
APN 1.5'		
A14-5801-11(31.5)		
<u>33-35</u>		
BC push 5T	SM SM interbedded	only stain
APN 1.5'	clayey silt with silty sand	v. slight odor
A14-5801-12(33.5)	moist, tan-brown & grey	
	fairly light	
<u>35-37</u>		
BC push 5T	SM CL clay, tan	no odor
APN 1.5'	grey w/ orange stains,	no vit.
A14-5801-13(35)	dry, stiff	
<u>37-39</u>		
BC push 5T	CL sandy (70%) clay,	no odor
APN 1.5'	tan grey w/ orange	no vit.
A14-5801-14(38)	staining, moist, stiff	
<u>39-41</u>		
BC push 5T	SM clayey, sandy silt	no odor
APN 1.5'	tan grey w/ orange (slight)	no vit.
A14-5801-15(40)	stains, dry, stiff	

S. Anderson 4/11/86

DEPTH	DESCRIPTION	REMARKS
<u>41-43</u>		
BC push 5T	SM silty f. sand	no odor
APN 1.5'	clay, tan grey w/ sl. (Fe)	no vit.
A14-5801-16(42.5)	orange staining, dry moist	
	light	
<u>43-45</u>		
BC push 5T	SM as above w/	slight no odor
APN 1.5'	less clay	no vit.
A14-5801-17(44.5)		some only staining
<u>45-47</u>		
BC push 5T	SM silty f. sand	v. slight odor
APN 1.5'		trace only spot
A14-5801-18(46)		
<u>47-49</u>		
BC push 5T	CL clay, red brown	only stain
APN 1.5'	dry, stiff, lichenoid	slight odor
A14-5801-19(49)	thick Fe Mn root filled deposits	
	no stringers	

S. Anderson 4/11/86

817200

8

DEPTH	DESCRIPTION	REMARKS
<u>49.51</u>	CL as above w/	no vis.
BC push. ST	True moist sand	little no odor
recov. .5-	pebbles along slickensides	
A14-5801-20(49.5)		

② 51.53 1240

done w/	headspace	on samples
-07 20.	-12 2.5	17 4.0
-08 7.	-13 0.5	18 5.0
-09 15.	-14 0.5	19 2.5
-10 11.	-15 0.5	20 1.0
-11 3.	-16 4.0	

1250 B. Tobin & B. Urban arrive on location. Tobin has on 5 sleeve work clothes and camel leather shoes again no hard hat and he is with 5-10' of the reg. P. Moore mentioned a hard hat but he didn't appear to acknowledge they brought more drags

JA Lenthoe 4/11/81

9

DEPTH	DESCRIPTION	REMARKS
<u>51.53</u>	CL, clay, rd	no vis.
BC push. ST	brown with some grey	no odor
recov. 1.0	mottled stuff. dry	
A14-5801-21(52)	shaken into black	
<u>53.55</u>	CL, as above	no vis.
BC push. ST	(except all red-brown)	no odor
recov. 1'	hard	
DATA(A14-5801-22(54))		

1312 go to rd. Casalecade, take table reading 0.3 - ambient air = background

1330 lv. site
1645 arrive Austin

JA Lenthoe 4/11/81